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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,243	07/17/2006	Kensaku Matsuda	Q95614	1822

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EXAMINER	
ZHANG, JUE	

ART UNIT	PAPER NUMBER
2838	

MAIL DATE	DELIVERY MODE
10/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/586,243	MATSUDA ET AL.	
	Examiner	Art Unit	
	Jue Zhang	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *8 and 9* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,10 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07/17/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/17/2006;09/22/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in answer to the amendment filed 06/01/2007. Claims 1-11 are pending, of which original claims 1, 4, 5, 7 are amended, claims 8-9 are cancelled, and claims 10-11 are newly added by the present amendment.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7, 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Toshiyuki et al. (JP Pub No. JP10-042'575, hereinafter '575).

Claim 1, '575 teaches an inverter device (Fig. 1-6) comprising:

an inverter circuit including a bridge circuit connected between a positive electrode and a negative electrode of a direct-current power supply (Fig. 1-6), the bridge circuit including

an upper arm unit including an upper-arm switching element (e.g., T1, T3, T5)(Fig. 1-6) and an upper arm diode (e.g., D1, D3, D5)(Fig. 1-6) connected in reverse-parallel to each other;

a lower arm unit including a lower arm switching element (e.g., T2, T4, T6)(Fig. 1-6) and a lower arm diode (e.g., D2, D4, D6)(Fig. 1-6) connected in reverse-parallel to each other, the lower arm unit being series connected with the upper arm unit;

an inverter driving unit including a high withstand voltage IC (e.g., 100 or 200)(Fig. 1-6)[0001](Abstract) that drives switching elements in the upper arm unit and the lower-arm unit, the high-withstand-voltage IC having a first terminal (e.g., VS0) for supplying a reference voltage to the switching element in the lower arm unit and a second terminal (e.g. VS1, VS2,VS3) for supplying a high-voltage to the switching element in the upper arm unit (Fig. 1-6); and

a clamp unit (e.g., 110 or 216-218) that clamps a potential difference between the first terminal and the second terminal (Fig. 1-6).

For claim 2, '575 teaches the limitation of claim 1 as discussed above. '575 further teaches that the inverter circuit is a single-phase inverter circuit (Fig. 1-3).

For claim 3, '575 teaches the limitation of claim 2 as discussed above. '575 further teaches that the clamp unit is a clamp diode (Fig. 1-3).

For claim 4, '575 teaches the limitation of claim 3 as discussed above. '575 further teaches that a current rating (e.g., the RMS current rating of the diode) of the clamp diode is smaller than a current rating (e.g., the peak current rating of the diode) of the lower arm diode (i.e., even for a same type of diode it can have more then one current ratings, for example the peak current rating vs. RMS current rating).

For claim 5, '575 teaches the limitation of claim 3 as discussed above. '575 further teaches that the clamp diode is provided outside of the high-withstand-voltage IC

(Fig. 1-3).

For claim 6, '575 teaches the limitation of claim 1 as discussed above. '575 further teaches that the inverter circuit is a three-phase inverter circuit (Fig. 4-6).

For claim 7, '575 teaches the limitation of claim 6 as discussed above. '575 further teaches that the clamp unit includes a plurality of clamp diodes each corresponding to each phase of the three-phase inverter circuit (Fig. 4-6).

For claim 10, '575 teaches the limitation of claim 7 as discussed above. '575 further teaches that each of the clamp diodes is connected between the first terminal and each of the second terminals (Fig. 4-6).

For claim 11, '575 teaches the limitation of claim 7 as discussed above. '575 further teaches that the high-withstand-voltage IC having a third terminal (e.g., VCC)(Fig. 4-6) for supplying a high-voltage to the switching element in the lower arm unit, and fourth terminals (e.g., VB1-VB3)(Fig. 4-6) each for supplying a high-voltage to a switching element in each phase, and the clamp diodes include a first clamp diode connected between the first terminal and the third terminal (e.g., 216, 217,218)(Fig. 5); and second clamp diodes (e.g., 202-204) each connected between the third terminal and each of the fourth terminals (Fig. 4-6).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jue Zhang whose telephone number is (571) 270-1263.

The examiner can normally be reached on M-TH 8:00AM-5:00PM EST, Other F 8:00AM-4:00PM EST

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BAO Q. VU
PRIMARY EXAMINER

JZ